

Listing of Claims

Please amend the claims by replacing all prior versions of the claims with the following listing of claims:

1. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) a cap-labeled mRNA substrate.
2. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.
3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 2 wherein said HeLa cell cytoplasmic extract is prepared by dialysis of said extract containing 10% glycerol.
4. (cancelled)
5. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 2 wherein said S100 cell cytoplasmic extract comprises a 100,000 x g, 1 hour supernatant from a HeLa cell lysate.
6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said methylated cap analog is ^{7me}GpppG or ^{7me}GTP.
- 7 - 8. (cancelled)
9. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

10. (currently amended) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.
11. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate comprises poly(A) or at least one RNA element.
12. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 wherein said RNA element is an AU-rich element.
13. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 wherein said RNA element is a pyrimidine-rich element.
- 14 - 16. (cancelled)
17. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) cap-labeled mRNA substrate.
18. (cancelled)
19. (previously presented) The kit of claim 17 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

20. (currently amended) The kit of claim 17 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

21 - 26. (cancelled)

27. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 further comprising means for sequestering proteins that bind to poly(A).

28. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 further comprising means for stimulating decapping of the cap-labeled mRNA substrate wherein the cap-labeled mRNA substrate comprises poly(A).

29. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 11 further comprising a cold poly(A) competitor RNA.

30. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 12 further comprising means for reducing decapping of the cap-labeled mRNA substrate.

31. (currently amended) The mammalian *in vitro* mRNA decapping system of claim 12 further comprising an AU-rich element competitor RNA.

32. (previously presented) The kit of claim 17 wherein the cap-labeled mRNA substrate comprises poly(A).

33. (previously presented) The kit of claim 32 further comprising means for stimulating decapping the cap labeled mRNA substrate.

34. (previously presented) The kit of claim 32 further comprising a cold poly(A) competitor RNA.
35. (previously presented) The kit of claim 17 wherein the cap-labeled mRNA substrate comprises an RNA element.
36. (previously presented) The kit of claim 35 wherein the RNA element is an AU-rich element.
37. (currently amended) The kit of claim 36 ~~furthering~~ further comprising means for reducing decapping the cap-labeled mRNA substrate.
38. (previously presented) The kit of claim 36 further comprising an AU-rich element competitor RNA.
39. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a cap-labeled mRNA substrate; and
 - c) means for decapping the cap-labeled mRNA substrate.
40. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
 - a) a polysome-free HeLa cell cytoplasmic extract;
 - b) a cap-labeled mRNA substrate; and
 - c) means for decapping the cap-labeled mRNA substrate.
41. (previously presented) The kit of claim 17 wherein the polysome-free HeLa cell cytoplasmic extract is HeLa S100 cell cytoplasmic extract.
42. (previously presented) The kit of claim 39 wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.

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43. (previously presented) The kit of claim 40 wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cytoplasmic extract.